

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (withdrawn): An assay method using a biochemical analysis unit, comprising the steps of:
 - i) obtaining a biochemical analysis unit provided with a plurality of porous adsorptive regions, to which ligands or receptors have been bound respectively, and
 - ii) performing a specific binding detecting process comprising the steps of:
 - a) forcibly causing a receptor or a ligand to flow such that the receptor or the ligand flows across each of the porous adsorptive regions of the biochemical analysis unit, the receptor or the ligand being thus subjected to specific binding with the ligands or the receptors, each of which has been bound to one of the porous adsorptive regions of the biochemical analysis unit, the receptor or the ligand being thereby specifically bound to at least one of the ligands, each of which has been bound to one of the porous adsorptive regions of the biochemical analysis unit, or at least one of the receptors, each of which has been bound to one of the porous adsorptive regions of the biochemical analysis unit, and
 - b) detecting the receptor or the ligand, which has thus been specifically bound to at least one of the ligands or at least one of the receptors, by the utilization of a labeling substance,

a liquid being forcibly caused to flow, such that the liquid flows across each of the porous adsorptive regions of the biochemical analysis unit, during the specific binding detecting process,

wherein a liquid, which has been subjected to gas content decreasing processing for decreasing the content of a dissolved gas, is employed as the liquid, which is forcibly caused to flow.

2. (currently amended): An assay method using a biochemical analysis unit, comprising the steps of:

- i) obtaining a biochemical analysis unit provided with a plurality of porous adsorptive regions, to which ligands or receptors have been bound respectively, and
- ii) performing a specific binding detecting process comprising the steps of:
 - a) forcibly causing a receptor or a ligand to flow such that the receptor or the ligand flows across each of the porous adsorptive regions of the biochemical analysis unit, the receptor or the ligand being thus subjected to specific binding with the bound ligands or the bound receptors, ~~each of which has been bound to one of the porous adsorptive regions of the biochemical analysis unit~~, the receptor or the ligand being thereby specifically bound to at least one of the bound ligands, ~~each of which has been bound to one of the porous adsorptive regions of the biochemical analysis unit~~, or ~~to~~ at least one of the bound receptors, ~~each of which has been bound to one of the porous adsorptive regions of the biochemical analysis unit~~, and

b) detecting the receptor or the ligand, which has thus been specifically bound to at least one of the bound ligands or at least one of the bound receptors, by the utilization of a labeling substance,

a liquid being forcibly caused to flow, such that the liquid flows across each of the porous adsorptive regions of the biochemical analysis unit, during the specific binding detecting process,

wherein bubble removing processing for removing bubbles, which are present in the liquid, from the liquid is performed during the flowing of the liquid.

3. (currently amended): An assay method using a biochemical analysis unit, comprising the steps of:

i) obtaining a biochemical analysis unit provided with a plurality of porous adsorptive regions, to which ligands or receptors have been bound respectively, and

ii) performing a specific binding detecting process comprising the steps of:

a) forcibly causing a receptor or a ligand to flow such that the receptor or the ligand flows across each of the porous adsorptive regions of the biochemical analysis unit, the receptor or the ligand being thus subjected to specific binding with the bound ligands or the bound receptors, each of which has been bound to one of the porous adsorptive regions of the biochemical analysis unit, the receptor or the ligand being thereby specifically bound to at least one of the bound ligands, each of which has been bound to one of the porous adsorptive regions of the biochemical analysis unit, or to at least one of the bound receptors, each of

~~which has been bound to one of the porous adsorptive regions of the biochemical analysis unit, and~~

b) detecting the receptor or the ligand, which has thus been specifically bound to at least one of the bound ligands or at least one of the bound receptors, by the utilization of a labeling substance,

a liquid being forcibly caused to flow, such that the liquid flows across each of the porous adsorptive regions of the biochemical analysis unit, during the specific binding detecting process,

wherein bubble dissolving processing for dissolving bubbles, which are present in the liquid, is performed during the flowing of the liquid.

4. (withdrawn): A method as defined in Claim 1 wherein the specific binding detecting process comprises the steps of:

a) forcibly causing a reaction liquid containing a labeled receptor or a labeled ligand, which has been labeled with a labeling substance, to flow such that the reaction liquid flows across each of the porous adsorptive regions of the biochemical analysis unit provided with the plurality of the porous adsorptive regions, to which the ligands or the receptors have been bound respectively, the labeled receptor or the labeled ligand being thus subjected to the specific binding with the ligands or the receptors, each of which has been bound to one of the porous adsorptive regions of the biochemical analysis unit, the labeled receptor or the labeled ligand being thereby specifically bound to at least one of the ligands, each of which has been bound to one of the porous adsorptive regions of the biochemical analysis unit, or at least one

of the receptors, each of which has been bound to one of the porous adsorptive regions of the biochemical analysis unit, and

b) detecting the labeled receptor or the labeled ligand, which has thus been specifically bound to at least one of the ligands or at least one of the receptors, by the utilization of the labeling substance.

5. (currently amended): A method as defined in Claim 2 wherein the specific binding detecting process comprises the steps of:

a) forcibly causing a reaction liquid containing a labeled receptor or a labeled ligand, which has been labeled with a labeling substance, to flow such that the reaction liquid flows across each of the porous adsorptive regions of the biochemical analysis unit provided with the plurality of the porous adsorptive regions, to which the bound ligands or the bound receptors have been bound respectively, the labeled receptor or the labeled ligand being thus subjected to the specific binding with the bound ligands or the bound receptors, each of which has been bound to one of the porous adsorptive regions of the biochemical analysis unit, the labeled receptor or the labeled ligand being thereby specifically bound to at least one of the bound ligands, each of which has been bound to one of the porous adsorptive regions of the biochemical analysis unit, or to at least one of the bound receptors, each of which has been bound to one of the porous adsorptive regions of the biochemical analysis unit, and

b) detecting the labeled receptor or the labeled ligand, which has thus been specifically bound to at least one of the bound ligands or at least one of the bound receptors, by the utilization of the labeling substance.

6. (currently amended): A method as defined in Claim 3 wherein the specific binding detecting process comprises the steps of:

- a) forcibly causing a reaction liquid containing a labeled receptor or a labeled ligand, which has been labeled with a labeling substance, to flow such that the reaction liquid flows across each of the porous adsorptive regions of the biochemical analysis unit provided with the plurality of the porous adsorptive regions, to which the bound ligands or the bound receptors have been bound respectively, the labeled receptor or the labeled ligand being thus subjected to the specific binding with the bound ligands or the bound receptors, each of which has been ~~bound to one of the porous adsorptive regions of the biochemical analysis unit~~, the labeled receptor or the labeled ligand being thereby specifically bound to at least one of the bound ligands, each of which has been bound to one of the porous adsorptive regions of the biochemical analysis unit, or ~~to~~ at least one of the bound receptors, each of which has been ~~bound to one of the porous adsorptive regions of the biochemical analysis unit~~, and
- b) detecting the labeled receptor or the labeled ligand, which has thus been specifically bound to at least one of the bound ligands or at least one of the bound receptors, by the utilization of the labeling substance.

7. (withdrawn): A method as defined in Claim 1 wherein the specific binding

detecting process comprises the steps of:

- a) subjecting the receptor or the ligand to the specific binding with the ligands or the receptors, each of which has been bound to one of the porous adsorptive regions of the

biochemical analysis unit, the receptor or the ligand being thereby specifically bound to at least one of the ligands, each of which has been bound to one of the porous adsorptive regions of the biochemical analysis unit, or at least one of the receptors, each of which has been bound to one of the porous adsorptive regions of the biochemical analysis unit,

- b) forcibly causing a reaction liquid containing a labeled body, which has been labeled with a labeling substance, to flow such that the reaction liquid flows across each of the porous adsorptive regions of the biochemical analysis unit, the labeled body being thus specifically bound to the receptor or the ligand having been specifically bound to at least one of the ligands, each of which has been bound to one of the porous adsorptive regions of the biochemical analysis unit, or at least one of the receptors, each of which has been bound to one of the porous adsorptive regions of the biochemical analysis unit, and
- c) detecting the receptor or the ligand, which has been specifically bound to at least one of the ligands or at least one of the receptors, by the utilization of the labeled body.

8. (currently amended): A method as defined in Claim 2 wherein the specific binding detecting process comprises the steps of:

- a) subjecting the receptor or the ligand to the specific binding with the bound ligands or the bound receptors, each of which has been bound to one of the porous adsorptive regions of the biochemical analysis unit, the receptor or the ligand being thereby specifically bound to at least one of the bound ligands, each of which has been bound to one of the porous adsorptive regions of the biochemical analysis unit, or to at least one of the bound receptors,

~~each of which has been bound to one of the porous adsorptive regions of the biochemical analysis unit,~~

- b) forcibly causing a reaction liquid containing a labeled body, which has been labeled with a labeling substance, to flow such that the reaction liquid flows across each of the porous adsorptive regions of the biochemical analysis unit, the labeled body being thus specifically bound to the receptor or the ligand having been specifically bound to at least one of the bound ligands, ~~each of which has been bound to one of the porous adsorptive regions of the biochemical analysis unit, or to~~ at least one of the bound receptors, ~~each of which has been bound to one of the porous adsorptive regions of the biochemical analysis unit, and~~
c) detecting the receptor or the ligand, which has been specifically bound to at least one of the bound ligands or at least one of the bound receptors, by the utilization of the labeled body.

9. (currently amended): A method as defined in Claim 3 wherein the specific binding detecting process comprises the steps of:

- a) subjecting the receptor or the ligand to the specific binding with the bound ligands or the bound receptors, ~~each of which has been bound to one of the porous adsorptive regions of the biochemical analysis unit,~~ the receptor or the ligand being thereby specifically bound to at least one of the bound ligands, ~~each of which has been bound to one of the porous adsorptive regions of the biochemical analysis unit, or to~~ at least one of the bound receptors, ~~each of which has been bound to one of the porous adsorptive regions of the biochemical analysis unit,~~

b) forcibly causing a reaction liquid containing a labeled body, which has been labeled with a labeling substance, to flow such that the reaction liquid flows across each of the porous adsorptive regions of the biochemical analysis unit, the labeled body being thus specifically bound to the receptor or the ligand having been specifically bound to at least one of the bound ligands, ~~each of which has been bound to one of the porous adsorptive regions of the biochemical analysis unit, or to~~ at least one of the bound receptors, ~~each of which has been bound to one of the porous adsorptive regions of the biochemical analysis unit,~~ and

c) detecting the receptor or the ligand, which has been specifically bound to at least one of the bound ligands or at least one of the bound receptors, by the utilization of the labeled body.

10. (withdrawn): A method as defined in Claim 1 wherein the specific binding detecting process comprises the steps of:

a) subjecting an auxiliary substance-bound receptor or an auxiliary substance-bound ligand, to which an auxiliary substance has been bound, to the specific binding with the ligands or the receptors, each of which has been bound to one of the porous adsorptive regions of the biochemical analysis unit, the auxiliary substance-bound receptor or the auxiliary substance-bound ligand being thereby specifically bound to at least one of the ligands, each of which has been bound to one of the porous adsorptive regions of the biochemical analysis unit, or at least one of the receptors, each of which has been bound to one of the porous adsorptive regions of the biochemical analysis unit,

b) forcibly causing a reaction liquid containing a labeling substance, which is capable of undergoing specific binding with the auxiliary substance, to flow such that the reaction liquid flows across each of the porous adsorptive regions of the biochemical analysis unit, the labeling substance, which is capable of undergoing specific binding with the auxiliary substance, being thus specifically bound to the auxiliary substance-bound receptor or the auxiliary substance-bound ligand having been specifically bound to at least one of the ligands, each of which has been bound to one of the porous adsorptive regions of the biochemical analysis unit, or at least one of the receptors, each of which has been bound to one of the porous adsorptive regions of the biochemical analysis unit, and

c) detecting the auxiliary substance-bound receptor or the auxiliary substance-bound ligand, which has been specifically bound to at least one of the ligands or at least one of the receptors, by the utilization of the labeling substance.

11. (currently amended): A method as defined in Claim 2 wherein the specific binding detecting process comprises the steps of:

a) subjecting an auxiliary substance-bound receptor or an auxiliary substance-bound ligand, to which an auxiliary substance has been bound, to the specific binding with the bound ligands or the bound receptors, each of which has been bound to one of the porous adsorptive regions of the biochemical analysis unit, the auxiliary substance-bound receptor or the auxiliary substance-bound ligand being thereby specifically bound to at least one of the bound ligands, each of which has been bound to one of the porous adsorptive regions of the biochemical

~~analysis unit, or to at least one of the bound receptors, each of which has been bound to one of the porous adsorptive regions of the biochemical analysis unit,~~

b) forcibly causing a reaction liquid containing a labeling substance, which is capable of undergoing specific binding with the auxiliary substance, to flow such that the reaction liquid flows across each of the porous adsorptive regions of the biochemical analysis unit, the labeling substance, which is capable of undergoing specific binding with the auxiliary substance, being thus specifically bound to the auxiliary substance-bound receptor or the auxiliary substance-bound ligand having been specifically bound to at least one of the bound ligands, ~~each of which has been bound to one of the porous adsorptive regions of the biochemical analysis unit, or to at least one of the bound receptors, each of which has been bound to one of the porous adsorptive regions of the biochemical analysis unit, and~~

c) detecting the auxiliary substance-bound receptor or the auxiliary substance-bound ligand, which has been specifically bound to at least one of the bound ligands or at least one of the bound receptors, by the utilization of the labeling substance.

12. (currently amended): A method as defined in Claim 3 wherein the specific binding detecting process comprises the steps of:

a) subjecting an auxiliary substance-bound receptor or an auxiliary substance-bound ligand, ~~to which an auxiliary substance has been bound~~, to the specific binding with the bound ligands or the bound receptors, ~~each of which has been bound to one of the porous adsorptive regions of the biochemical analysis unit~~, the auxiliary substance-bound receptor or the auxiliary substance-bound ligand being thereby specifically bound to at least one of the bound ligands,

each of which has been bound to one of the porous adsorptive regions of the biochemical analysis unit, or to at least one of the bound receptors, each of which has been bound to one of the porous adsorptive regions of the biochemical analysis unit,

- b) forcibly causing a reaction liquid containing a labeling substance, which is capable of undergoing specific binding with the auxiliary substance, to flow such that the reaction liquid flows across each of the porous adsorptive regions of the biochemical analysis unit, the labeling substance, which is capable of undergoing specific binding with the auxiliary substance, being thus specifically bound to the auxiliary substance-bound receptor or the auxiliary substance-bound ligand having been specifically bound to at least one of the bound ligands, each of which has been bound to one of the porous adsorptive regions of the biochemical analysis unit, or to at least one of the bound receptors, each of which has been bound to one of the porous adsorptive regions of the biochemical analysis unit, and
- c) detecting the auxiliary substance-bound receptor or the auxiliary substance-bound ligand, which has been specifically bound to at least one of the bound ligands or at least one of the bound receptors, by the utilization of the labeling substance.

13. (withdrawn): A biochemical analysis apparatus, comprising:

- i) a reaction vessel, which is provided with a support section for releasably supporting a biochemical analysis unit within the reaction vessel, the biochemical analysis unit being provided with a plurality of porous adsorptive regions, to which ligands or receptors have been bound respectively, the reaction vessel being adapted to perform specific binding of a specific binding substance with the ligands or the receptors, each of which has been bound to one of

the porous adsorptive regions of the biochemical analysis unit, the specific binding substance being capable of undergoing the specific binding with the ligands or the receptors, and

ii) flowing means for forcibly causing a reaction liquid containing the specific binding substance to flow within the reaction vessel such that the reaction liquid containing the specific binding substance flows across each of the porous adsorptive regions of the biochemical analysis unit,

wherein the apparatus further comprises bubble removing means for performing bubble removing processing for removing bubbles, which are present in the reaction liquid, from the reaction liquid, which is flowing.

14. (withdrawn): A biochemical analysis apparatus, comprising:

i) a reaction vessel, which is provided with a support section for releasably supporting a biochemical analysis unit within the reaction vessel, the biochemical analysis unit being provided with a plurality of porous adsorptive regions, to which ligands or receptors have been bound respectively, the reaction vessel being adapted to perform specific binding of a specific binding substance with the ligands or the receptors, each of which has been bound to one of the porous adsorptive regions of the biochemical analysis unit, the specific binding substance being capable of undergoing the specific binding with the ligands or the receptors, and

ii) flowing means for forcibly causing a reaction liquid containing the specific binding substance to flow within the reaction vessel such that the reaction liquid containing the specific binding substance flows across each of the porous adsorptive regions of the biochemical analysis unit,

wherein the apparatus further comprises bubble dissolving means for performing bubble dissolving processing for dissolving bubbles, which are present in the liquid, on the reaction liquid, which is flowing.

15. (withdrawn): An apparatus as defined in Claim 13 wherein the reaction vessel is adapted to perform specific binding of a labeled receptor or a labeled ligand, which has been labeled with a labeling substance, with the ligands or the receptors, each of which has been bound to one of the porous adsorptive regions of the biochemical analysis unit, and

the flowing means forcibly causes a reaction liquid containing the labeled receptor or the labeled ligand to flow such that the reaction liquid flows across each of the porous adsorptive regions of the biochemical analysis unit.

16. (withdrawn): An apparatus as defined in Claim 14 wherein the reaction vessel is adapted to perform specific binding of a labeled receptor or a labeled ligand, which has been labeled with a labeling substance, with the ligands or the receptors, each of which has been bound to one of the porous adsorptive regions of the biochemical analysis unit, and

the flowing means forcibly causes a reaction liquid containing the labeled receptor or the labeled ligand to flow such that the reaction liquid flows across each of the porous adsorptive regions of the biochemical analysis unit.

17. (withdrawn): An apparatus as defined in Claim 13 wherein the reaction vessel is adapted to perform:

a) specific binding of the receptor or the ligand with the ligands or the receptors, each of which has been bound to one of the porous adsorptive regions of the biochemical analysis unit, and

b) specific binding of a labeled body, which has been labeled with a labeling substance, with the receptor or the ligand, which has been specifically bound to at least one of the ligands or at least one of the receptors, and

the flowing means forcibly causes a reaction liquid containing the labeled body to flow such that the reaction liquid flows across each of the porous adsorptive regions of the biochemical analysis unit.

18. (withdrawn): An apparatus as defined in Claim 14 wherein the reaction vessel is adapted to perform:

a) specific binding of the receptor or the ligand with the ligands or the receptors, each of which has been bound to one of the porous adsorptive regions of the biochemical analysis unit, and

b) specific binding of a labeled body, which has been labeled with a labeling substance, with the receptor or the ligand, which has been specifically bound to at least one of the ligands or at least one of the receptors, and

the flowing means forcibly causes a reaction liquid containing the labeled body to flow such that the reaction liquid flows across each of the porous adsorptive regions of the biochemical analysis unit.

19. (withdrawn): An apparatus as defined in Claim 13 wherein the reaction vessel is adapted to perform:

a) specific binding of an auxiliary substance-bound receptor or an auxiliary substance-bound ligand, to which an auxiliary substance has been bound, with the ligands or the receptors, each of which has been bound to one of the porous adsorptive regions of the biochemical analysis unit, and

b) specific binding of a labeling substance, which is capable of undergoing specific binding with the auxiliary substance, with the auxiliary substance-bound receptor or the auxiliary substance-bound ligand having been specifically bound to at least one of the ligands, each of which has been bound to one of the porous adsorptive regions of the biochemical analysis unit, or at least one of the receptors, each of which has been bound to one of the porous adsorptive regions of the biochemical analysis unit, and

the flowing means forcibly causes a reaction liquid containing the labeling substance, which is capable of undergoing the specific binding with the auxiliary substance, to flow such that the reaction liquid flows across each of the porous adsorptive regions of the biochemical analysis unit.

20. (withdrawn): An apparatus as defined in Claim 14 wherein the reaction vessel is adapted to perform:

a) specific binding of an auxiliary substance-bound receptor or an auxiliary substance-bound ligand, to which an auxiliary substance has been bound, with the ligands or the

receptors, each of which has been bound to one of the porous adsorptive regions of the biochemical analysis unit, and

b) specific binding of a labeling substance, which is capable of undergoing specific binding with the auxiliary substance, with the auxiliary substance-bound receptor or the auxiliary substance-bound ligand having been specifically bound to at least one of the ligands, each of which has been bound to one of the porous adsorptive regions of the biochemical analysis unit, or at least one of the receptors, each of which has been bound to one of the porous adsorptive regions of the biochemical analysis unit, and

the flowing means forcibly causes a reaction liquid containing the labeling substance, which is capable of undergoing the specific binding with the auxiliary substance, to flow such that the reaction liquid flows across each of the porous adsorptive regions of the biochemical analysis unit.